

## *Actinotus repens* Keighery ex Henwood (Apiaceae): A new species from south-west Western Australia

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### Abstract

*Actinotus repens* Keighery ex Henwood (Mackinlayoideae, Apiaceae) is here described as a new species from south-west Western Australia. A key to Western Australian species of *Actinotus* is included.

### Introduction

*Actinotus* comprises 19 described species, with two centres of species richness: one in south-west Western Australia (8 endemic spp.) and the other in eastern Australia (6 endemic spp.). *Actinotus schwartzii* F.Muell. is restricted to the Macdonnell ranges (Northern Territory), and three species (*A. bellidioides* (Hook.f.) Benth., *A. moorei* F.Muell., and *A. suffocates* (Hook.f.) Rodway) are currently restricted to Tasmania. One species, *A. novae-zelandiae* (Petrie) Petrie, is endemic to Te Waipounamu, Aotearoa–New Zealand.

Placement of *Actinotus* within Apiaceae has, until relatively recently, been somewhat equivocal. Maximum parsimony analysis of nucleotide sequences from chloroplast and nuclear genomes has consistently placed *Actinotus* as a well-supported member of Mackinlayoideae (Plunkett and Lowry, 2001; Nicolas and Plunkett, 2009). Relationships between *Actinotus* and other Mackinlayoideae, however, remain unresolved with the genus either supported as sister to the New Caledonian endemic shrub, *Apiopetalum* or in a weakly supported sister relationship to the Australian endemic genera, *Xanthosia*+*Chlaenosciadium*, and the South African centred genus, *Centella* (Nicolas and Plunkett, 2009).

As with the placement of *Actinotus* within Mackinlayoideae, the phylogenetic relationships within *Actinotus* await clarification. There are, however, several morphologically distinct groups within *Actinotus*. One of the most morphologically distinct groups contains *A. omnifertilis* (F.Muell.) Benth., *A. rhomboideus* (Turcz.) Benth. and *A. laxus* Keighery, all of which are restricted to south-west Western Australia. This group of species are readily distinguishable from other *Actinotus* by their simple, often toothed leaves; umbels of relatively few mostly co-sexual flowers subtended by relatively small, free bracts; clawed, ovate petals; more or less connate sepals, and basipetally swollen styles that cross at anthesis. It is with this group of species that the newly described *A. repens* Keighery ex Henwood has its strongest morphological similarities.

## Taxonomy

*Actinotus repens* Keighery ex Henwood, *sp. nov.*

**Diagnosis:** Differing from *A. laxus* and *A. omnifertilis* by its prostrate habit, robust indumented branches, and broadly ovate cauline leaves with c. 5–13 teeth. It differs from *A. rhomboideus* (Turcz.) Benth. by its prostrate habit and leaves with fewer teeth.

**Holotype:** Western Australia: Warren: Walpole-Nornalup National Park: Delta Road, 0.45 km from junction with Isle Road, *J.R. Wheeler 3786* & *S.J. Patrick*, 27 Jan 1993 (*holo*: PERTH 4058488).

**Informal names synonymous with *A. repens* Keighery ex Henwood:**

*Actinotus* “*walpole*” (*Wheeler 3786*) in Wheeler et al., *Flora of the South West* 2: 477 (2002)

*Actinotus* sp. Walpole (*J.R. Wheeler* & *S.J. Patrick 3786*)\* WA Herbarium [FloraBase accessed 2013].

\*A miscitation of the type collection: *J.R. Wheeler 3786* & *S.J. Patrick*

*Actinotus repens* Keighery ms WA Herbarium [FloraBase accessed 2013]

Suffrutescent, prostrate perennial, to 5 cm high, c. 20 cm wide. *Stems* glabrous, robust. *Leaves* alternate, estipulate; *petioles* (2–)4–15 mm long, pilose, terete to slightly canaliculated, bases alate; *lamina* entire, broadly ovate, (6–)9–10 × (6–) 10 (–15) mm long, glabrous or with scattered trichomes towards margin of younger leaves; margin coarsely dentate; venation pinnate, obscure; abaxial surface lighter green than adaxial surface. *Inflorescences* simple, umbellate, (3–)6–9-flowered; peduncles 4–21 mm long; *bracts* free, elliptic, foliose 0.7–0.8 × 2–5 mm; *pedicels* 0.5 mm long, apically articulated with ovary, retained after fruit is shed. *Calyx* tubular, distally with a 5-toothed rim 0.4 mm long, sparsely ciliate. *Petals* 5, ovate, 0.3 × 0.5 mm, white, with a single obvious vein. *Stamens* 5. *Styles* 2, often crossed at maturity, 0.5 mm long. *Fruit* uniloculate, turbinate, 0.5 × 0.7 × 1 mm, slightly compressed, 5-ribbed, pilose. Fig. 1.

**Representative specimens listed by IBRA (2012) subregion: Western Australia. Northern Jarrah Forest:** 2.8 km ENE of Mt William, near the intersection of Willowdale Road and Zigzag Road, Lane-Poole Conservation Reserve, *A.J. Perkins AJP-WA48*, 19 Oct 2003 (PERTH, NSW, SYD); **Southern Jarrah Forest:** 0.5 km W of the corner of Sues and Crouch roads, E of Margaret River (SWCC.WH.03a Plot SCRD01), *M. Morley 490*, 22 Oct 2007 (PERTH); **Warren:** Creek-line on Lane-Poole Road, 5.5 km E of the Wheatley Road, near Northcliffe, *R.W. Hearn (ARA 5886)*, 12 Mar 1997 (SYD); Near Granite Peak, c. 20 miles [32 km] N of Walpole, *A.S. George 11122*, 3 Oct 1971 (PERTH); c. 2 km W of Walpole, north of the SW highway and & 500 m W of Walpole River, Edge of Walpole National Park, *J.R. Wheeler 3779* & *S.J. Patrick*, 27 Jan 1993 (PERTH); Pemberton, *M. Koch 2613*, Dec 1921 (NSW); Delta Road, 0.5 km W of Isle Road, Walpole-Nornalup National Park, *A.J. Perkins AJP-WA54*, 22 Oct 2003 (PERTH, NSW, SYD).

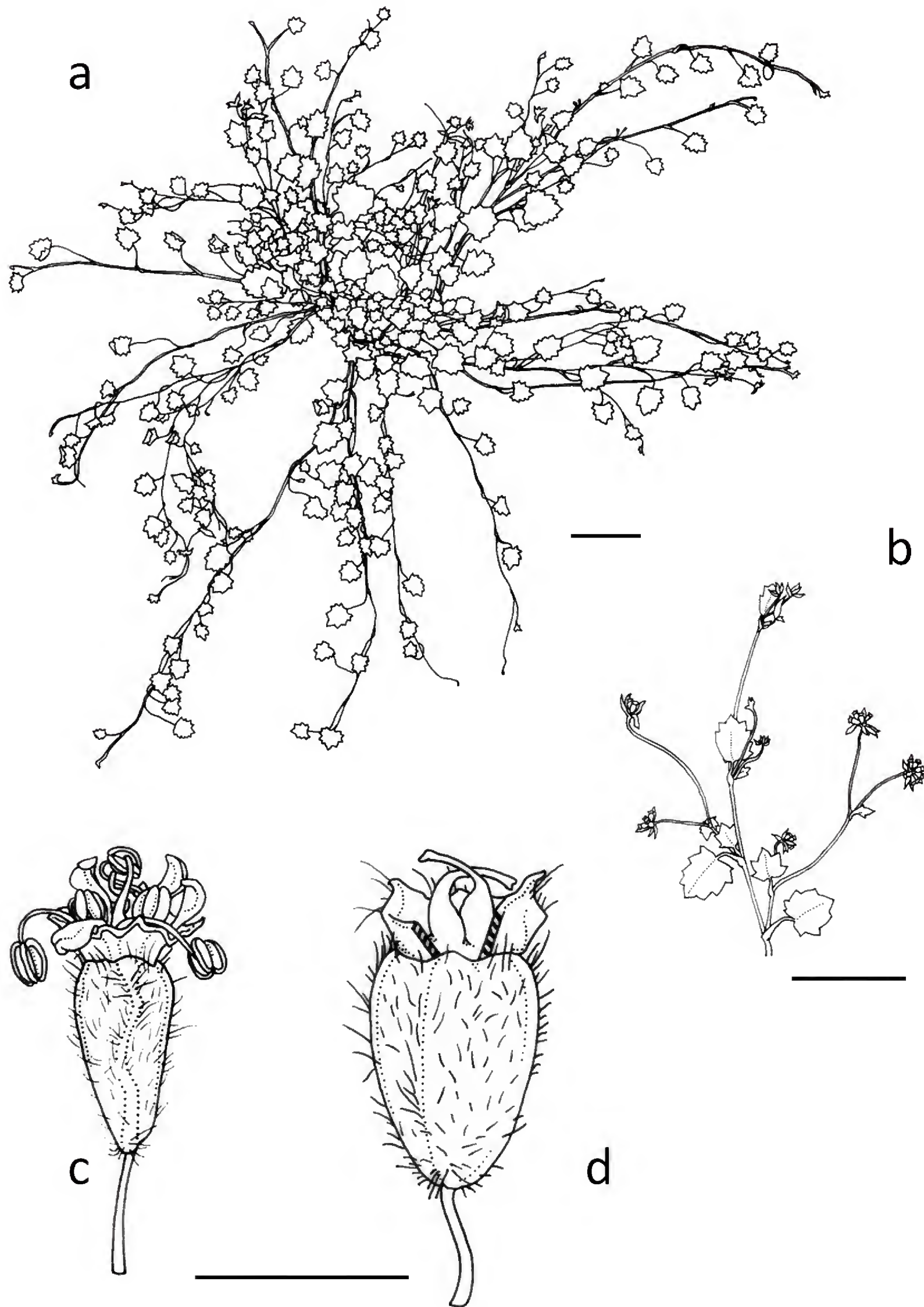
**Etymology:** The specific epithet, *repens*, refers to the prostrate growth habit of this species.

**Distribution and habitat:** Endemic to south-west Western Australia (Fig. 2). It occurs on sandy clay and mud in valleys along creek-lines and edges of other water channels from the Waroona area south to Walpole, amongst *Eucalyptus* or *Melaleuca* dominated woodland.

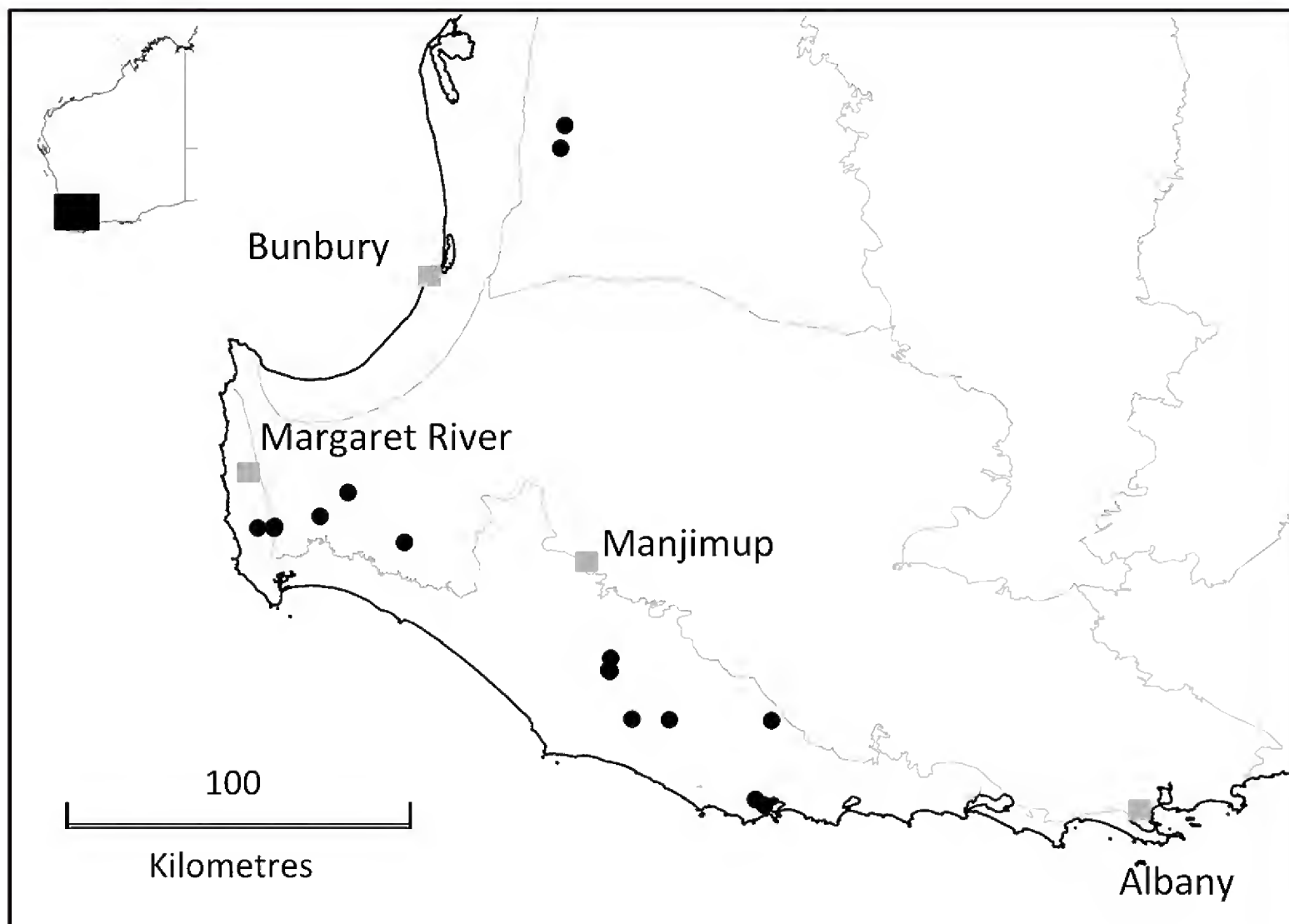
**Flowering period:** January to March.

**Fruiting period:** January to March.

**Conservation status:** Western Australian Declared Flora priority 3, under the name *Actinotus* sp. Walpole (*J.R. Wheeler* & *S.J. Patrick 3786*) i.e. poorly known species including some populations that are not currently endangered (FloraBase, accessed 2013).



**Fig. 1.** Illustration of *Actinotus repens* Keighery ex Henwood: **a**, habit; **b**, flowering branch; **c**, flower; **d**, fruit with sepaline rim partially removed to show the crossed styles. Based on R.W Hearn ARA 5886I. Scale bar a & b = 15 mm, c & d = 1 mm



**Fig. 2.** Map of known localities of *Actinotus repens* Keighery ex Henwood in south-west Western Australia with v 7.0 IBRA sub-regions (Australian Government Department of the Environment, 2012, as provided by: Department of Sustainability, Environment, Water, Population and Communities) indicated in grey.

### Key to Western Australian *Actinotus*

- 1 Leaves simple, toothed; styles crossed; petals ovate. .... 2
- 1: Leaves variously ternatisect; styles not crossed; petals spatulate or absent ..... 5
- 2 Leaves cuneate; stems glabrescent with an indumentum of sparse, short, patent trichomes ..... 3
- 2: Leaves orbiculate, rhomboidal or ovate; stems with a villous indumentum ..... 4
- 3 Leaves mostly basal with more than three teeth on the margin; branches robust ..... *A. omnifertilis*
- 3: Leaves scattered along branches, tridentate; branches weak ..... *A. laxus*
- 4 Plants prostrate; leaf lamina ovate, glabrous or sparsely indumented ..... *A. repens*
- 4: Plants ascending; leaf lamina orbiculate-rhomboidal, villous ..... *A. rhomboideus*
- 5 Sepals free, elongated ..... 6
- 5: Sepals connate forming an entire or shortly toothed rim ..... 7
- 6 Leaf laminas 20–25 mm long; flowers numerous and arranged in an umbellate pseudanthium; stylopodium and nectary free from each other in fruit; peduncles 50–80 mm long ..... *A. whicheranus*
- 6: Leaf laminas 4–12 mm long; flowers 3–5 per umbel; stylopodium and nectary connate, becoming swollen in fruit; umbels sessile or shortly pedunculate ..... *A. glomeratus*
- 7 Anthers purple at maturity; involucre bracts 7 mm long ..... *A. leucocephalus*
- 7: Anthers yellow at maturity; involucre bracts 15 mm long ..... 8
- 8 Stems and inflorescences erect; involucre bracts 2–3 mm wide (appearing wider due to indumentum) ..... *A. superbus*
- 8: Stems erect or spreading; inflorescences radiating; involucre bracts 5 mm wide ..... *A. humilis*

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